



# HOT HABITATS (CLASSIFIED)

**SUBJECTS:** English/Language Arts, Science, Health

**GRADES:** 4-8

**DURATION:** One class period

**GROUP SIZE:** One class of 25-30 students

**SETTING:** Indoors or Outdoors

**KEY VOCABULARY:** Habitat, niche, deciduous, canopy, propagate, arson, humus layer, prairie, adaptation, serotinous, classified advertisement, savanna, nocturnal

**ANTICIPATORY SET:** Today we are going to talk about the type of "habitat" you would like to settle down in. We will look in newspapers for just the right spot for you.

**OBJECTIVES:** The students will be able to 1) determine suitable habitats for several species of animals; and 2) understand that fire is not always a detriment to an animal's habitat.

**MATERIALS:** Newspaper classified ads, animal habitat cards, pencil, paper

**BACKGROUND:** Unlike people, animals and plants in a forest ecosystem do not always have a choice of where they live. Because of our ability to change our "habitats" to suit the climate or other things that might make our lives unpleasant, we can live almost anywhere. Our water is piped into our house, we have grocery stores for our food and space in and around our homes to move around in.

A forest habitat is made up of a great variety of plants and animals and they rarely have a choice of where they live. A habitat is a place where a plant or animal naturally lives. This area must provide everything an organism needs to thrive – food, water and space to reproduce and grow. Several organisms can share a habitat and occupy various niches. A niche is the location or function of a species within a specific community.

In a deciduous forest (deciduous trees lose their leaves each year) there are a variety of niches in which to "hang out". For example, the scarlet tanager, a bright red songbird, eats insects in the high canopy of the forest. Woodpeckers prefer the trunk of trees to find their insects. Squirrels scavenge for nuts, helping to broadcast and propagate new trees. Deer browse on the forest floor consuming acorns, grasses, shrubs and herbs. Smaller animals such as moles tunnel beneath the forest floor in search of insects and grubs. Hawks soar above all of this preying on mice, snakes and other small animals.

Sometimes a habitat is disrupted by change, either manmade or natural. Examples of manmade disruptions may include urban land development, timber harvesting and agriculture. Natural disruptions include a number of weather related threats – tornados, hurricanes, blizzards, floods and drought.

Fire is another disruption to forest habitats and can either be natural (the majority of natural fires in the western United States are caused by lightning) or manmade. Fire caused by man is usually from carelessness – a cigarette tossed out a car window, poorly extinguished campfires, etc. Unfortunately, on occasion, manmade fires are caused by arsonists. Arson is the willful or malicious burning of land or buildings and causes millions of dollars of damage to homes and property each year.



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To survive a fire most animals will either flee (deer, fox, bison, bobcats, etc), fly to another area (almost all bird species) or burrow deeper underground (rats, mice, moles, shrews, snakes, lizards, turtles, etc.). Nestlings and chicks of wild turkeys and other birds may not be able to fly. These and other animals cannot escape the fire's path. Their remains attract scavengers and predators, such as coyote, to burned areas.

After a fire, organisms that inhabit the top few inches of the forest floor (humus layer) often decrease. Undesirable pests (pinecone beetles, red maple leaf cutters, etc.) living in the humus layer of deciduous forests are often reduced by fire while other beneficial insects such as ants thrive. Ants are important to prairie landscapes. Their tunnels help air and water get to the plants' roots. Ant populations usually increase after a prairie fire.

Plants do not have the luxury of escaping fire as animals do. They are unable to run, fly, creep, crawl or burrow to escape the flames. Plants have developed adaptations to survive a fire. Bark thickness is the most important factor in a tree's resistance to fire. Examples of such trees are: the giant sequoia, red pine and ponderosa pine. Trees such as the maple, beech, and Eastern red cedar, as well as some small woody shrubs, usually have thin bark. Soil insulates underground roots and organs of these more fragile thin-barked plants and new shoots will appear even after a fire destroys the surface part of the plant. Some conifers have serotinous cones (remaining closed until the occurrence of high temperatures such as created by fire) and their species would be threatened if fire did not occur on a regular basis.

Today, we are beginning to realize that fire is not always destructive, it is merely one of the many means of change that take place in a forest ecosystem.

### PROCEDURE:

1. Before the lesson begins the teacher will read the information found on the front and back of the animal habitat cards (found in this lesson) and become familiar with the type of habitat each animal prefers.
2. The teacher asks students to bring in the classified advertisement section from newspapers.
3. The students will look through the classifieds and circle ads for apartments or homes that appeal to them. Ask several students to read the ads they have circled.
4. The teacher will make a list of features under the student's name on the dry erase board. For example, if students' ads repeatedly feature lake frontage and large spacious lawns, you might write "likes to swim and fish, needs lots of space." Include enough students so that a variety of "habitats" emerge.
5. The teacher will now explain that just as we have different preferences and needs for living areas, so do animals.
6. Identify the different animals in the pictures included in this lesson and read the information on the front and back of the animal card about where the animal lives, what it eats, etc.
7. Divide the class into small groups of three to four students and give each group an animal card. Inform the students that they will write a classified ad to advertise the type of "home" this animal would prefer. A typical advertisement for a raccoon might read:

*Beautiful lakeside property with abundant fish, crayfish and frogs just ready to catch. Some of the forest surrounding the property burned a few years ago but has made a great comeback. Many dead trees with large cavities just waiting for the right inhabitant. Come have a look.*

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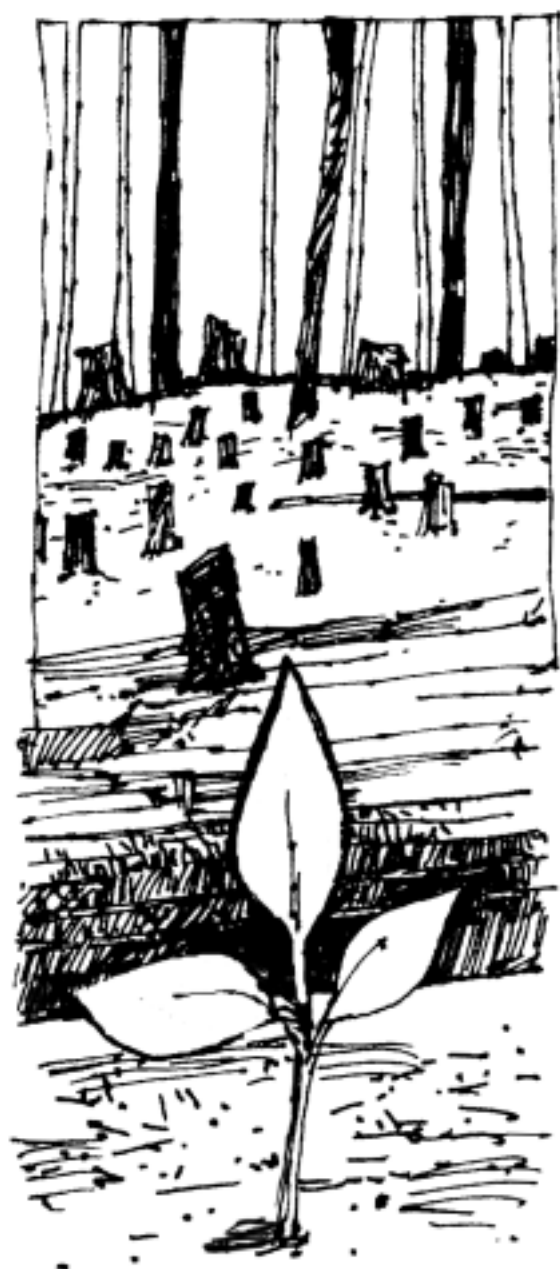
**CLOSURE:** This lesson has taught us that fire is an element to be respected. It is also a necessary component, under certain circumstances, to maintain proper habitats for many plants and animals to thrive.

**EVALUATION:** The teacher can evaluate the students by the classified advertisements brought into class as well as the materials written for the animal's habitats.

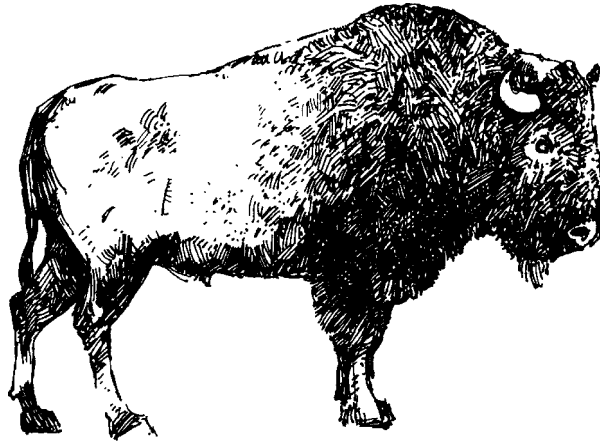
### EXTENSIONS:

1. The students can research plant adaptations to fire and write the same type of classified ads for the most appropriate habitat of the chosen plant.
2. Students can investigate the circumstances of the disappearance of the prairie and savanna habitats that once covered large areas of Kentucky.
3. Students can write classified ads for other animals living in different habitats.



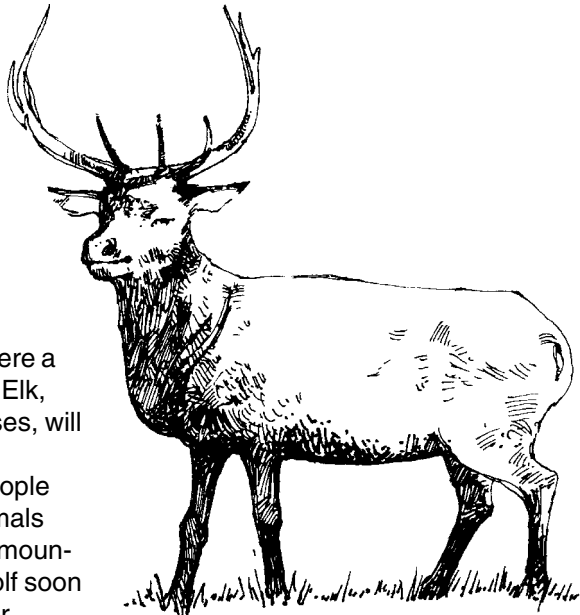


# Bison



The bison is the largest land animal in North America with a height of five to six feet and weighing 800-2,000 pounds. Bison were once indigenous to Kentucky and were a major source of food for Native Americans. Native people used bison hides for clothing and burned "buffalo chips" in their fires. Before the Civil War, professional hunters, as well as settlers, reduced the number of bison in the United States from 60 million to less than 1,000. Today there are approximately 30,000 in North America. The bison was reintroduced in Kentucky a few years ago but their range is limited because of the disappearance of the prairie habitat that once covered 2.4 million acres of Central and Western Kentucky.

# Elk



Elk are in the same family as the white-tailed deer that is so common throughout the eastern United States. Elk are much larger than deer and until approximately 150 years ago were a common species in Kentucky. Elk, unlike bison who eat only grasses, will feed on twigs, bark, herbs and grasses. As more and more people inhabited Kentucky large mammals such as bison, elk, black bear, mountain lion, timber wolf and red wolf soon became extinct because of over hunting and loss of habitat.

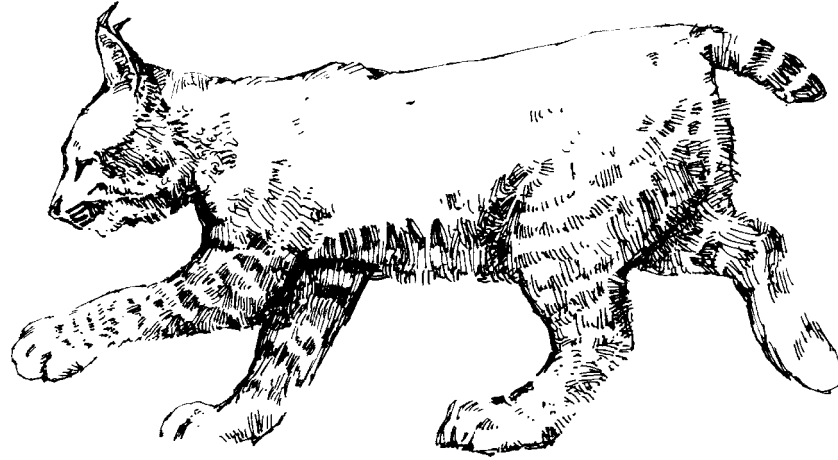
## **Bison's Adaptation to Fire**

Bison are fast runners and are able to avoid most wildland fires. Fire is essential to maintaining the prairie habitat that the bison is dependent upon. Unlike other large mammals, bison primarily eat grass. Fire stimulates the growth of tender new grasses. Prairies were created by lightning-caused fires or by fires set by Native Americans.

## **Elk's Adaptation to Fire**

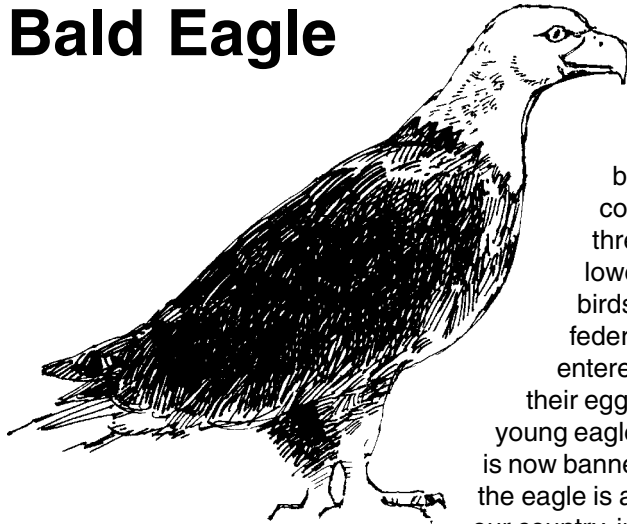
Elk are fast runners and are therefore able to avoid most wildland fires. In the past, elk were associated with the open, mixed hardwood savannas of central Kentucky. Their browsing, along with white-tailed deer and bison, was likely responsible for maintaining the patchy forests and grasslands typifying the savanna habitat. Fire is important in maintaining the openness of these habitats. Without fire, open areas are overtaken by native and non-native species, and are unable to sustain this type of environment. Some ecologists believe the oak savannas are one of the most threatened ecosystems in North America.

# Bobcat



The bobcat is a small mammal weighing anywhere from 15-35 pounds. They have thick, soft fur, long legs and a short, stubby tail. Bobcats are good climbers and like to hunt small animals and birds. They are nocturnal (active at night) and solitary. Their home may be a cave or hollow log and is called a den.

# Bald Eagle



The bald eagle is the national bird of the United States. At one time this regal bird was placed on the endangered species list but has made a dramatic comeback. It is still listed as threatened in all but three of the lower 48 states and as with all birds of prey is protected by federal law. DDT, an insecticide, entered the eagle's food chain and their eggshells became so thin that young eaglets could not survive. DDT is now banned in the United States and the eagle is again found in many parts of our country, including Kentucky. This bird builds its nest in the same place each

year, adding sticks and enlarging it to massive proportions. Sometimes these nests may weigh as much as 1,000 pounds. One nest was found that has been used for 34 years and weighs over two tons! The eagle usually lives near water – oceans, lakes, rivers, etc.

## **Bobcat's Adaptation to Fire**

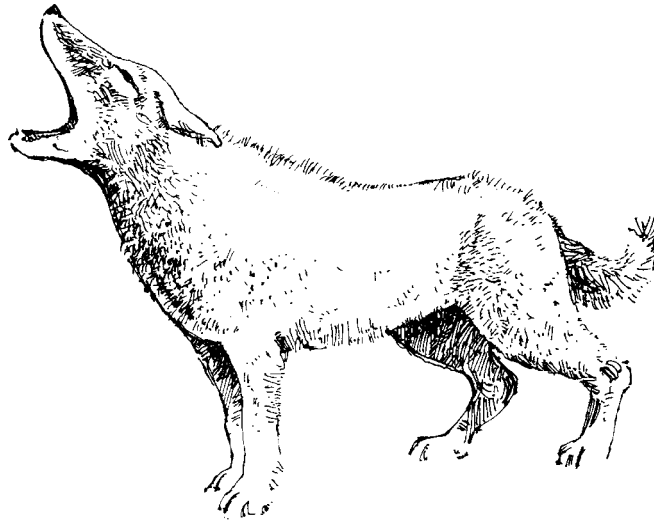
The bobcat can usually escape wildland fires by running or hiding in a den. Soon after a fire, tender new plants begin to appear. These plants attract animals such as rabbits and other small mammals. The burned areas make it easier for the bobcat to catch these animals but also removes the plants the bobcats use to hide in when moving about.

## **Bald Eagle's Adaptation to Fire**

The bald eagle can escape even rapidly moving wildland fires by simply flying away. Many of these fires do not even reach their nests, which are high in trees and on high, rocky cliffs. Fires create dead trees, called snags. These snags are used for perches and also for their nests. Because of the open areas created by fire, eagles are able to see and hunt for its food in a more efficient manner. The eagle's diet consists of fish (swimming close to the water's surface), small mammals, waterfowl, wading birds, and dead animals (carrion).



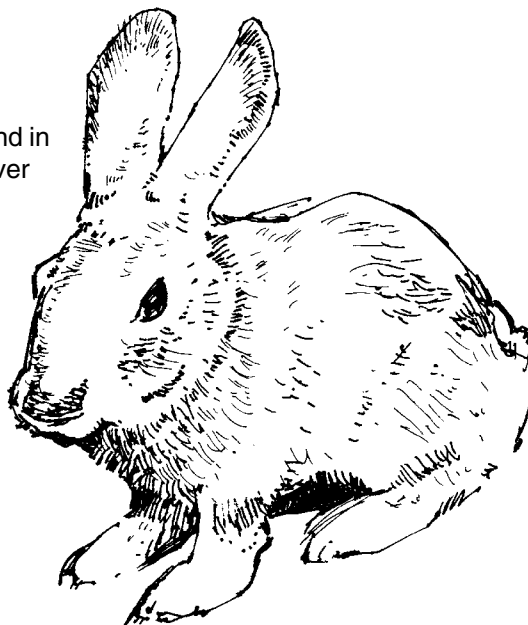
# Coyote



The coyote is a relative of the wolf. Coyotes live in most areas of North America and all of the United States except Hawaii. Coyotes hunt at night (nocturnal) and for the most part eat rodents and rabbits but will also eat birds, insects, snakes and lizards. They will on occasion kill sheep and calves. Wild dogs probably do much of the damage attributed to the coyote. Since the coyote's main diet is rodents and rabbits they are actually doing a real service to farmers and ranchers.

# Eastern Cottontail Rabbit

These cute, furry mammals are found in all states east of the Mississippi River and in five to six states located on the western side of the Mississippi. The cottontail lives in slight depressions in the ground, in a burrow, or beneath a brush pile. They feed on green vegetation in the warm months and on twigs and barks in the winter. Rabbits are a popular game animal for hunters and are also a food source of many larger mammals and birds of prey.



## **Coyote's Adaptation to Fire**

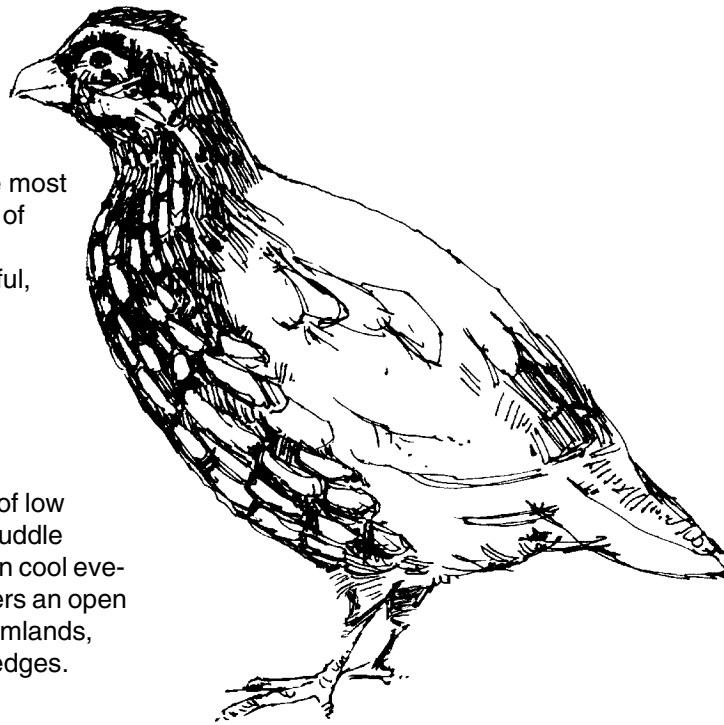
Coyotes are very mobile and can escape most wildland fires by running away. These fires burn away the ground cover that hides the coyote's prey – rodents, rabbits and other small mammals – making it easier for them to hunt. Tender grasses and plants, which sprout after a fire, attract greater numbers of the small animals that the coyote likes to eat.

## **Cottontail Rabbit's Adaptation to Fire**

Rabbits can run quite fast and are able to escape many wildland fires. Their speed accompanied by their sense of smell helps them escape. Many new grasses and plants grow after a fire. Rabbits like to eat these tender young plants and are attracted to newly burned areas. Fires remove the protective brush that the rabbit uses for cover to hide from their predators. This makes them easier to be seen and be caught but it also makes it easier for the rabbit to see and escape from their enemies.

# Quail

Quail are a favorite bird for hunters in Kentucky. One of the most recognizable species of quail is the Bobwhite because of the cheerful, whistled bob-white or poor-bob-white call heard in the summer months. Families form coveys of 8 to 25 birds and remain together in the cover of low bushes. They often huddle together for warmth on cool evenings. The quail prefers an open habitat with brush, farmlands, pastures, and forest edges.



## **Quail's Adaptation to Fire**

Quail can easily escape fire by flying. They are attracted to burned areas because of an abundance of insects and seeds. Although there is a good food source in these burned areas the bushes they use for cover and warmth are usually removed and they will be forced to find a new place to live.